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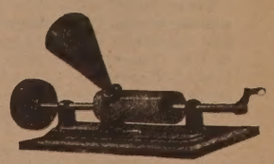
THE NEWSPAPER FOR
THE HOBBYIST OF VINTAGE
ELECTRONICS AND SOUND

THE HORN SPEAKER



PHONOGRAPH CENTENNIAL
1877 - 1977

1877, FROM THE

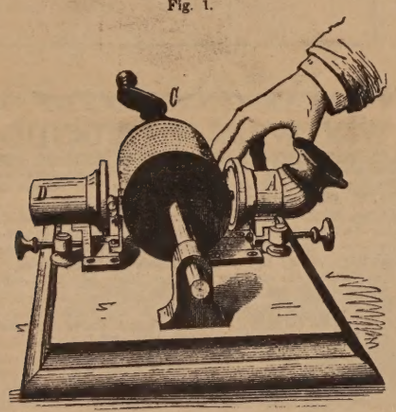
Scientific American.

THE TALKING PHONOGRAPH.

Mr. Thomas A. Edison recently came into this office, placed a little machine on our desk, turned a crank, and the machine inquired as to our health, asked how we liked the phonograph, informed us that *it* was very well, and bid us a cordial good night. These remarks were not only perfectly audible to ourselves, but to a dozen or more persons gathered around, and they were produced by the aid of no other mechanism than the simple little contrivance explained and illustrated below.

The principle on which the machine operates we recently explained quite fully in announcing the discovery. There is, first, a mouth piece, A, Fig. 1, across the inner orifice of which is a metal diaphragm, and to the center of this diaphragm is attached a point, also of metal. B is a brass cylinder supported on a shaft which is screw-threaded and turns in a nut for a bearing, so that when the cylinder is caused to revolve by the crank, C, it also has a horizontal travel in front of the mouthpiece, A. It will be clear that the point

Fig. 1.

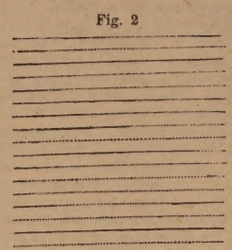


on the metal diaphragm must, therefore, describe a spiral trace over the surface of the cylinder. On the latter is cut a spiral groove of like pitch to that on the shaft, and around the cylinder is attached a strip of tinfoil. When sounds are uttered in the mouthpiece, A, the diaphragm is caused to vibrate and the point thereon is caused to make contacts with the tinfoil at the portion where the latter crosses the spiral groove. Hence, the foil, not being there backed by the solid metal of the cylinder, becomes indented, and these indentations are necessarily an exact record of the sounds which produced them.

It might be said that at this point the machine has already become a complete phonograph or sound writer, but it yet remains to translate the remarks made. It should be remembered that the Marey and Rosapelly, the Scott, or the Barlow apparatus, which we recently described, proceed no further than this. Each has its own system of caligraphy, and after it has inscribed its peculiar sinuous lines it is still necessary to decipher them. Perhaps the best device of this kind ever contrived was the preparation of the human ear made by Dr. Clarence J. Blake, of Boston, for Professor Bell, the inventor of the telephone. This was simply the ear from an actual subject, suitably mounted and having attached to its drum a straw, which made traces on a blackened rotating cylinder. The difference in the traces of the sounds uttered in the ear was very clearly shown. Now there is no doubt that by practice, and the aid of a magnifier, it would be possible to read phonetically Mr. Edison's record of dots and dashes, but he saves us that trouble by literally making it read itself. The distinction is the same as if, instead of perusing a book ourselves, we drop it into a machine, set the latter in motion, and behold! the voice of the author is heard repeating his own composition.

The reading mechanism is nothing but another diaphragm held in the tube, D, on the opposite side of the machine, and a point of metal which is held against the tinfoil on the cylinder by a delicate spring. It makes no difference as to the vibrations produced, whether a nail moves over a file or a file moves over a nail, and in the present instance it is the file or indented foil strip which moves, and the metal point is caused to vibrate as it is affected by the passage of the indentations. The vibrations, however, of this point must be precisely the same as those of the other point which made the indentations, and these vibrations, transmitted to a second membrane, must cause the latter to vibrate similar to the first membrane, and the result is a synthesis of the sounds which, in the beginning, we saw, as it were, analyzed.

Fig. 2



In order to exhibit to the reader the writing of the machine which is thus automatically read, we have had a cast of a portion of the indented foil made, and from this the dots and lines in Fig. 2 are printed in of course absolute facsimile, excepting that they are level instead of being raised above or sunk beneath the surface. This is a part of the sentences, "How do you do?" and "How do you like the phonograph?" It is a little curious that the machine pronounces its own name with especial clearness. The crank handle shown in our perspective illustration of the device does not rightly belong to it, and was attached by Mr. Edison in order to facilitate its exhibition to us.

In order that the machine may be able exactly to reproduce given sounds, it is necessary, first, that these sounds should be analyzed into vibrations, and these registered accurately in the manner described; and second, that their reproduction should be accomplished in the same period of time in which they were made, for evidently this element of time is an important factor in the quality and nature of the tones. A sound which is composed of a certain number of vibrations per second is an octave above a sound which registers only half that number of vibrations in the same period. Consequently if the cylinder be rotated at a given speed while registering certain tones, it is necessary that it should be turned at precisely that same speed while reproducing them, else the tones will be expressed in entirely different notes of the scale, higher or lower than the normal note as the cylinder is turned faster or slower. To attain this result there must be a way of driving the cylinder, while delivering the sound or speaking, at exactly the same rate as it ran while the sounds were being recorded, and this is perhaps best done by well regulated clockwork. It should be understood that the machine illustrated is but an experimental form, and combines in itself two separate devices—the phonograph or recording apparatus, which produces the indented slip, and the receiving or talking contrivance which reads it. Thus in use the first machine would produce a slip, and this would for example be sent by mail elsewhere, together in all cases with information of the velocity of rotation of the cylinder. The recipient would then set the cylinder of his reading apparatus to rotate at precisely the same speed, and in this way he would hear the tones as they were uttered. Differences in velocity of rotation within moderate limits would by no means render the machine's talking indistinguishable, but it would have the curious effect of possibly converting the high voice of a child into the deep bass of a man, or *vice versa*.

No matter how familiar a person may be with modern machinery and its wonderful performances, or how clear in his mind the principle underlying this strange device may be, it is impossible to listen to the mechanical speech without his experiencing the idea that his senses are deceiving him. We have heard other talking machines. The Faber apparatus for example is a large affair as big as a parlor organ. It has a key board, rubber larynx and lips, and an immense amount of ingenious mechanism which combines to produce something like articulation in a single monotonous organ note. But here is a little affair of a few pieces of metal, set up roughly on an iron stand about a foot square, that talks in such a way, that, even if in its present imperfect form many words are not clearly distinguishable, there can be no doubt but that the inflections are those of nothing else than the human voice.

We have already pointed out the startling possibility of the voices of the dead being reheard through this device, and there is no doubt but that its capabilities are fully equal to other results just as astonishing. When it becomes possible as it doubtless will, to magnify the sound, the voices of such singers as Parepa and Titiens will not die with them, but will remain as long as the metal in which they may be embodied will last. The witness in court will find his own testimony repeated by machine confronting him on cross-examination—the testator will repeat his last will and testament into the machine so that it will be reproduced in a way that will leave no question as to his devising capacity or sanity. It is already possible by ingenious optical contrivances to throw stereoscopic photographs of people on screens in full view of an audience. Add the talking phonograph to counterfeit their voices, and it would be difficult to carry the illusion of real presence much further.

DECEMBER 22, 1877.

A WONDERFUL INVENTION.—SPEECH CAPABLE OF INDEFINITE REPETITION FROM AUTOMATIC RECORDS.

It has been said that Science is never sensational; that it is intellectual not emotional; but certainly nothing that can be conceived would be more likely to create the profoundest of sensations, to arouse the liveliest of human emotions, than once more to hear the familiar voices of the dead. Yet Science now announces that this is possible, and can be done. That the voices of those who departed before the invention of the wonderful apparatus described in the letter given below are for ever stilled is too obvious a truth; but whoever has spoken or whoever may speak into the mouthpiece of the phonograph, and whose words are recorded by it, has the assurance that his speech may be reproduced audibly in his own tones long after he himself has turned to dust. The possibility is simply startling. A strip of indented paper travels through a little machine, the sounds of the latter are magnified, and our great grandchildren or posterity centuries hence hear us as plainly as if we were present. Speech has become, as it were, immortal.

The possibilities of the future are not much more wonderful than those of the present. The orator in Boston speaks, the indented strip of paper is the tangible result; but this travels under a second machine which may connect with the telephone. Not only is the speaker heard *now* in San Francisco for example, but by passing the strip again under the reproducer he may be heard tomorrow, or next year, or next century. His speech in the first instance is recorded and transmitted simultaneously, and indefinite repetition is possible.

The new invention is purely mechanical—no electricity is involved. It is a simple affair of vibrating plates, thrown into vibration by the human voice. It is crude yet, but the principle has been found, and modifications and improvements are only a matter of time. So also are its possibilities other than those already noted. Will letter writing be a proceeding of the past? Why not, if by simply talking into a mouthpiece our speech is recorded on paper, and our correspondent can by the same paper hear us speak. Are we to have a new kind of books? There is no reason why the orations of our modern Ciceros should not be recorded and detachably bound so that we can run the indented slips through the machine, and in the quiet of our own apartments listen again, and as often as we will, to the eloquent words. Nor are we restricted to spoken words. Music may be crystallized as well. Imagine an opera or an oratorio, sung by the greatest living vocalists, thus recorded, and capable of being repeated as we desire.

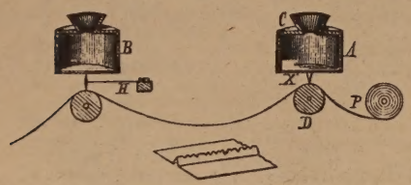
The invention, the credit of which is due to Mr. Thomas A. Edison, should not be confounded with the one referred

to by us in a previous number, and mentioned in our correspondent's letter. That device is illustrated on another page of this issue, and is of much more complicated construction. Mr. Edison has sent us sketches of several modifications and different arrangements of his invention. These we shall probably publish in a future number.

To the Editor of the Scientific American :

In your journal of November 3, page 273, you made the announcement that Dr. Rosapelly and Professor Marey have succeeded in graphically recording the movements of the lips, of the vail of the palate, and the vibrations of the larynx, and you prophesy that this, among other important results, may lead possibly to the application of electricity for the purpose of transferring these records to distant points by wire.

Was this prophecy an intuition? Not only has it been fulfilled to the letter, but still more marvelous results achieved by Mr. Thomas A. Edison, the renowned electrician, of New Jersey, who has kindly permitted me to make public not only the fact, but the *modus operandi*. Mr. Edison in the course of a series of extended experiments in the production of his speaking telephone, lately perfected, conceived the highly bold and original idea of recording the human voice upon a strip of paper, from which at any subsequent time it might be automatically re-delivered with all the vocal characteristics of the original speaker accurately reproduced. A speech delivered into the mouthpiece of this apparatus may fifty years hence—long after the original speaker is dead—be reproduced audibly to an audience with sufficient fidelity to make the voice easily recognizable by those who were familiar with the original. As yet the apparatus is crude, but is characterized by that wonderful simplicity which seems to be a trait of all great invention or discovery. The subjoined illustration, although not the



actual design of the apparatus as used by Mr. Edison, will better serve to illustrate and make clear the principle upon which he is operating.

A is a speaking tube provided with a mouthpiece, C—; X is a metallic diaphragm which responds powerfully to the vibrations of the voice. In the center of the diaphragm is secured a small chisel-shaped point. D is a drum revolved by clockwork, and serves to carry forward a continuous fillet of paper, having throughout its length and exactly in the center a raised V-shaped boss, such as would be made by passing a fillet of paper through a Morse register with the lever constantly depressed. The chisel point attached to the diaphragm rests upon the sharp edge of the raised boss. If now the paper be drawn rapidly along, all the movements of the diaphragm will be recorded by the indentation of the chisel point into the delicate boss—it, having no support underneath, is very easily indented; to do this, little or no power is required to operate the chisel. The tones of small amplitude will be recorded by slight indentations, and those of full amplitude by deep ones. This fillet of paper thus receives a record of the vocal vibrations or air waves from the movement of the diaphragm; and if it can be made to contribute the same motion to a second diaphragm, we shall not only see that we have a record of the words, but shall have them re-spoken; and if that second diaphragm be that of the transmitter of a speaking telephone, we shall have the still more marvelous performance of having them re-spoken and *transmitted by wire at the same time to a distant point.*

The reproductor is very similar to the indenting apparatus, except that a more delicate diaphragm is used. The reproductor, B, has attached to its diaphragm a thread which in turn is attached to a hair spring, H, upon the end of which is a V-shaped point resting upon the indentations of the boss. The passage of the indented boss underneath this point causes it to rise and fall with precision, thus contributing to the diaphragm the motion of the original one, and thereby rendering the words again audible. Of course Mr. Edison, at this stage of the invention, finds some difficulty in reproducing the finer articulations, but he quite justified by results obtained, from his first crude efforts, in his prediction that he will have the apparatus in practical operation within a year. He has already applied the principle of his speaking telephone, thereby causing an electro-magnet to operate the indenting diaphragm, and will undoubtedly be able to transmit a speech, made upon the floor of the Senate, from Washington to New York, record the same in New York automatically, and by means of speaking telephones redeliver it in the editorial ear of every newspaper in New York. In view of the practical inventions already contributed by Mr. Edison, is there any one who is prepared to gainsay this prediction? I for one am satisfied it will be fulfilled, and that, too, at an early date.

EDWARD H. JOHNSON, Electrician.

NOVEMBER 17, 1877.

FIND OF THE MONTH

My collection is going fine. About a month ago I found a Crosley Pup with a C.F. Cannon "Baby Grand" crystal set for $75. The crystal set had the original box. A few weeks ago I picked up a statuette crystal set 9½" tall made of ceramic or plaster of a young girl with hair like Shirley Temple sitting on a block. The crystal set is mount-

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4. 1923-1924 Electrical Research Laboratories Bulletins No. 17 and 18 ERLA Tuned-Reflex circuits//Scientific Audio Amplification, all design and construction plan of How to build these early radio stages, 20 pages.....$2.95.
5. 1924-25 Modern Radio Reception, By Charles R. Leutz A step by step detail analysis of all his works, How to build Regenerative, Super-Hets, Pliodyne, Laboratory, transmitting data and equipment: He used parts from 17 major sources and made the first Classic Hite, Super Hets, Models C7, C,Palmar,Super 4, C-10, S, J,Type T22, Cunningham tubes all types, Rare Diagrams of Western Electric Equipment, Gen Electric and Radio, over 260 of the finest well illustrated diagrams test equipment, Complete Chapter on His law suit RCA, 345 pages..$19.95
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12. 1927-28 RCA Sales Booklet, By Strauss March. Co. Texas, RCA'S: 16, 18, 30-A, 52, 80, 82, 84, All Later Access., Spkrs: 100-A,103,106, tubes, 28 pages.....$2.95

for those who want to remember...

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ed in the back of the block on a bakelite panel. There are four switch points and just a wire going to the crystal, quite crude. The girl is wearing a Shriners Fez and holding a staff. The only wording is "Baby Jacqueline" on the front face of the block. It is quite unusual! Do you know anything of it Some of the plaster is broken off the end of the staff but the wire reinforcing is there and my sister has ceramics as a hobby and says she can fix it like new and has the correct bronze coloring.

I enjoy "The Horn Speaker" very much. Keep up the good work.

Frank J. Heathcote
616 Barron St.
Logansport, Ind. 46947

Editor...I hope some of our readers know something about it.

Club News

INDIANAPOLIS

Second Annual Mid Winter swap Meet and Flea Market of Old Radio gear will take place at The Indiana Vocational College, (Ivy Tech) 1315 E. Washington Street Indianapolis (just east of down town on US 40) WHEN-Saturday Feb. 26 at 11a.m. Every one asked to bring extras for sale or trade. Plenty of indoor space with convenient space to parking lot off street west of building. Business meeting at 1 p.m. See you at Indy.

SOUTHWEST VINTAGE RADIO AND PHONOGRAPH SOCIETY

The Southwest group is really starting to move. Since they have held a successful "meet" in 1976, their membership has grown and they are now getting ready for a set of by laws.

Bob Sullivan, the new president with the new secretary Glen Zook are working with a seven member executive board to regulate the group in a more precise manner.

John Alford is the new vice president and Sam Canup is the new treasurer. Clarence Johnson was elected to serve on the board with the above and Jim Cranshaw, ex-president and Walt Jackson, ex-secretary.

LETTERS

Dear Jim:

Some months ago I got a near mint Pilot 3" TV but to my dismay the CRT was dead. After many letters & phone calls, I was able to get Allied Saks & Engineering, Pimento, Indiana 47866 to rebuild the 3KP4. The price of $70. was rather high but worth it as they did a beautiful job. As a consequence, they have now added this tube to their regular line. They will rebuild this type as well as most of the other early types so I appeal to collectors of early TV's to send them an order if we expect them to continue.

Sincerely,
Don Patterson
Augusta, Georgia 30904

Dear Mr. Cranshaw:

Mr. Morgan McMahon in his Vintage Radio Newsletter, mentioned "The Horn Speaker" as an antique radio publication. I have become quite interested in antique radio/TV collecting & restoration, with about 20 sets in my collection - ranging from a 1924 RCA Radiola III to a 1946 Zenith 8C01 dual-band FM/BC radio, plus old parts (Varicouplers, condensers, tubes & horn speakers).

Therefore, I would be most interested in obtaining a sample of your publication, and information as to subscription rates, etc.

Incidently, I do antique radio cabinet & electronics restoration to authentic reproduction quality, plus can locate antique sets in the Nebraska, So. Dakota, Iowa and Kansas areas for collectors wishing to buy certain models.

Thank you for your assistance.

Holly E. Burke
1201 Happy Hollow
Plattsmouth NE 68048

Editor...Always glad to hear from a collector.

1931 "CATHEDERALS"

A Compact Superheterodyne Midget Receiver

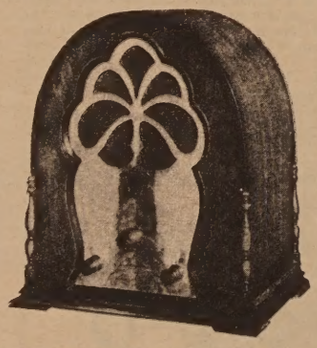
Description: This is an eight-tube superheterodyne receiver. It utilizes three screen-grid tubes and has a push-pull power output stage with two type -45 tubes. A feature of this set is the pair of extension speaker jacks that will permit the operation of extra speakers beside the receiver speaker contained in the cabinet. No tools or changes in the circuit are required in connecting the extra speakers. Simply plug the speaker cord of the extra reproducer in the extension jack.

Usage: For the reception of broadcasting.

Maker: Silver-Marshall Company. Chicago, Ill.

Midget Receiver

Description—This model No. 69 superheterodyne midget receiver utilizes eight tubes, which include three -24 screen-grid tubes, two -27 type tubes, two -45 type tubes and one -80 type rectifier tube. It is equipped with a full-range tone control and a Magnavox dynamic speaker. A highly polished, matched walnut cabinet with a recessed panel of burl walnut houses the receiver chassis and reproducer.



Maker—Jackson-Bell Company, Los Angeles, Calif.

Midget Receiver

Description—The new Super Buddy Boy is an eight-tube superheterodyne midget receiver using a pentode tube in the power output stage, multi-mu tubes in the radio-frequency and intermediate-frequency amplifiers. The oscillator is of the pliodynatron type. The receiver is provided with a dynamic speaker, a continuous (stepless) static control and a variable tone control. It is also equipped with the new development known as the "tennaboard," which eliminates the necessity for both antenna and ground on local and powerful distant stations. The receiver and reproducer are housed in a one-piece moulded cabinet.

Maker—The Crosley Radio Corporation, Cincinnati, O.

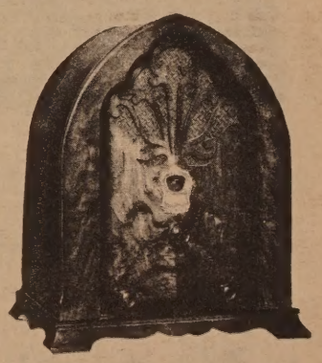
Mantel Receiving Set

Description—A five-tube midget receiver which employs two -24 type screen-grid tubes, one -27 type tube, one -80 type rectifier tube and one of the new type pentode tubes in the power output stage. It is equipped with a Rola dynamic speaker and a tone control. A walnut cabinet of modern design measuring 18 inches high by 15 inches wide by 9½ inches deep houses the receiver chassis and speaker unit.

Maker—Dubilier Clock Corp., 40 West 17th St., New York.

Midget Receiver

Description—A new model No. 90 Radiette nine-tube superheterodyne receiver offering several features usually encountered only in larger type receivers. It is equipped with push-pull audio amplification using two -45 type tubes, an antenna pre-selector, local-distance switch, tone control and phonograph connection. It also includes a tandem detector which provides an improvement in tone quality and permits the use of greater volume without overloading. The receiver chassis and speaker unit are encased in a cabinet measuring 19 inches by 14 inches by 10 inches.



Maker—Keller-Fuller Mfg. Co., Ltd., 1573 West Jefferson Blvd., Los Angeles, Calif.

1931 was a beautiful year for "cathedral" radios. These radios are from Radio News, July 1931. They were part of a trade show at the Stevens Hotel in Chicago in 1931.

TURN BACK THE DIAL

by Fred I. Davis
May 8, 1937

In a gala celebration that will mark his fifth year on the air, Jack Benny will revive one of seven of his old plays for the enjoyment of the radio audience on May 2. At the time of this writing, the voting by the listeners for the play to be re-presented is as follows;

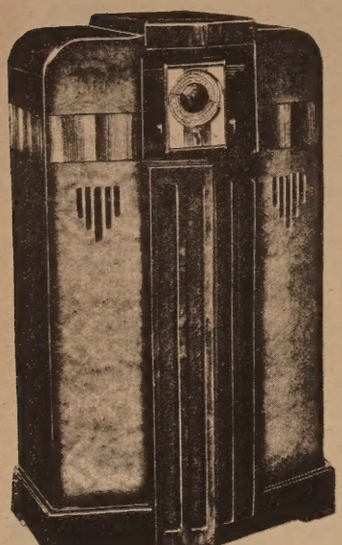
"Ah! Wilderness".....12,304
"Emperor Jones".....9,876
"Why Girls Leave Home".....8,440
"Charlie Chan At Radio City8,052
"Mutiny On The Benny".....6,733
"Code Of The Hills".....6,101
"Way Down East".....5,528

Your next six "Fibber McGee and Molly" shows will come from Hollywood because, during the past week, the famous team and their cast and gagman, Don Quinn, were signed by PARAMOUNT studios for a full-length feature picture. Filming begins on May 3rd on the picture whose working title is "This Way Please." Buddy Rogers and Shirley Ross will supply the love interest and Quinn will collaborate on the story. Jimmy Grier's band is to supplant Ted Weems' music while the radio show is in Hollywood, and for the first 4 weeks of the six, Hugh ("Silly Watson") Studebaker will

SHORT WAVE CRAFT for NOVEMBER, 1935

18-TUBE Receiver

Has Unique Dial and Controls



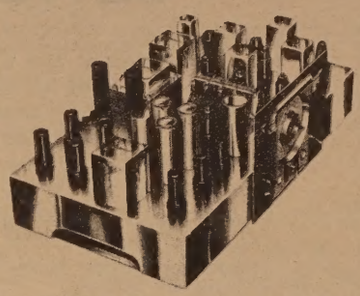
Front view of 18-tube Midwest "6-band" short-broadcast and long-wave receiver.

● THE new 1936 Midwest panel is strikingly different from anything else on the market. Its modern, up-to-the-minute appearance is in harmony with the advanced engineering displayed in the radio itself. The engineers have not been satisfied to incorporate only the controls required to operate the radio in the ordinary way. They have insisted that any control which would add to the ease and accuracy in operating this new model must be adopted as standard equipment. The makers have discarded old-fashioned round control knobs in favor of streamlined chromium-plated levers, which not only add to the distinctive beauty but make it easier to handle. At a glance you can tell in what working position they are set. Every control used in the operation of this receiver is on the front panel where they are readily accessible. All adjustments are made with the seven controls on the front panel.

The Line-O-Lite is a thin pencil of light which points out with great accuracy the frequency the set is tuned to. There is no "parallax" in this system of pointers of the clock-hand type. Obviously, this is a fine improvement. Imagine the amount of effort required in keeping your station log accurately if you must always remember to look at the dial from the same position! No matter from what position you look at the dial, the line-o-lite will always read the same true frequency.

The Tun-A-Lite is a very sensitive light which is bright on either side of a station but which dims when a station is tuned in. It is dimmest when the receiver is tuned to exactly the frequency of the tuned station. The tun-a-lite is superior to meter and shadow tuning in three respects: The Tun-A-Lite is centered on the Line-O-Lite frequency indicator and it *moves automatically* to which ever band you desire to use. Thus at all times, it is at the exact spot on the dial to which the radio is tuned.

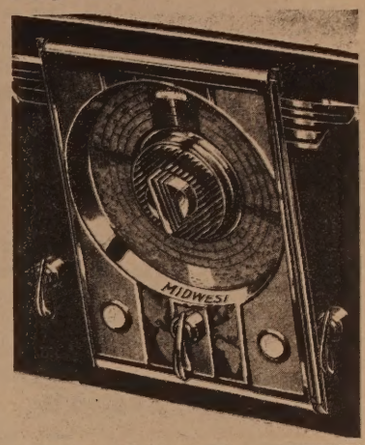
Tun-a-lite tuning is very accurate tuning because it takes advantage of the scientifically determined fact that the human eye is very sensitive to even very small changes in light intensity. The tun-a-lite is designed so that very strong signals nearly put the light out and even very weak signals dim the light more than enough to be detected by the eye.

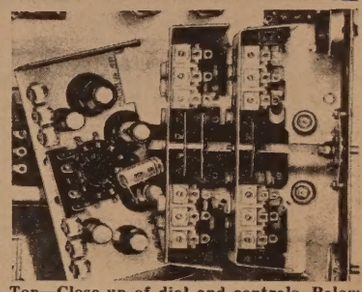


Appearance of chassis with 18 metal tubes. Range 4.5 to 2400 meters.

Six Bands—This receiver offers you a choice of six different bands, which cover completely without any gaps the tremendous range of frequencies from 125 kilocycles to 67 megacycles (i.e., 125,000 cycles to 67,000,000 cycles). The bands are lettered E—European Broadcast Band, A—American Broadcast, L—Low Frequency Short Wave Band, M—Medium Frequency Short Wave Band, H—High Frequency Short Wave Band, U—Ultra High Frequency Short Wave Band. The "Five Meter Amateurs" are found on the U Band.

The new triple calibrated dial takes the guesswork out of tuning! It assures easy, accurate, and rapid location of all stations. All six bands are calibrated clearly and to a large scale by *Frequency*. All six bands





Top—Close-up of dial and controls. Below —View of band-changing switches.

are calibrated by *groups*, to avoid wasting time looking for stations in the wrong place. All short wave bands are calibrated in *wavelength in meters* because many stations still give their location by wavelength, instead of frequency. Hence, you do not have to remember the mathematical relation between frequency and wavelength and interpolate from one to another.

Never are you in doubt about what band you are on because there are *two* band indicators. For your convenience, one is on the *frequency* calibrated part of the dial, and the other is on the *meter* calibrated part.

Ninety-eight call letters of the most powerful stations in the United States, Canada, and Mexico are illuminated on the meter calibrated part of the dial, when you are using the American Broadcast Band (A band). Turn the dial until the Call Letter Indicator points to a station you wish to hear—and in it comes!

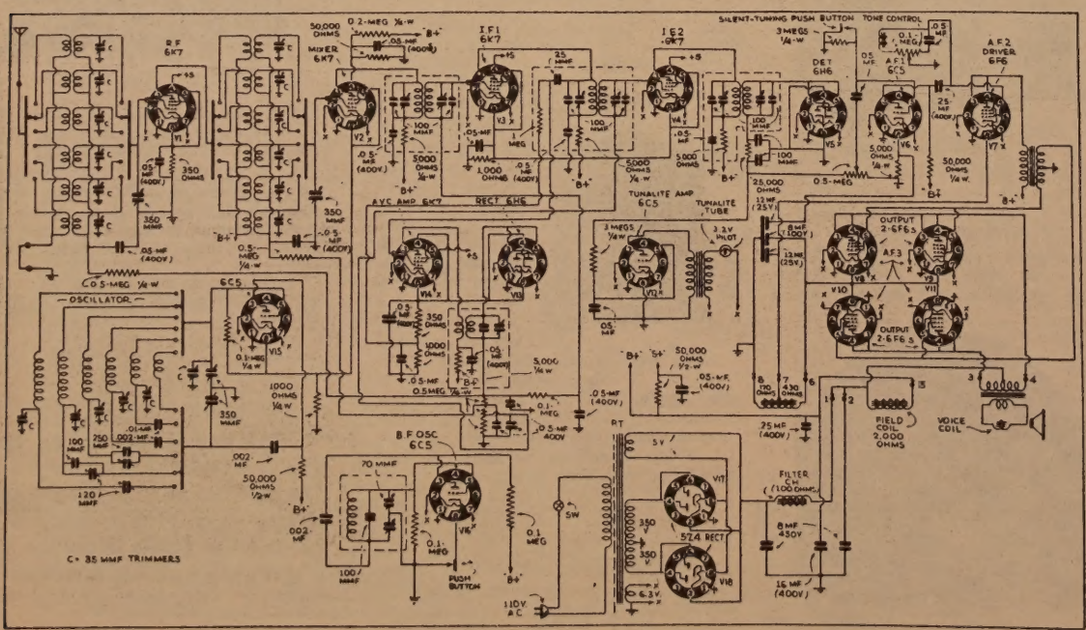
Moving to whichever band you select, this indicator shows what wavelength the receiver is on. On the American Broadcast band it shows you what station your set is bringing in.

There is a combined switch and volume control, because the first two operations in tuning a radio are turning on the switch and adjusting the volume control. The volume can be adjusted to any desired value and yet the tone will remain perfect.

Tone Control: The unique tone control is especially designed so as to have no stops (i.e., it can be turned completely around as many times as desired). This feature adds much to the ease with which this control can be handled. Its wide range makes it possible for you to find the tone which suits your every mood.

The Six-Band Selector on the new Midwest receiver is noiseless and positive in operation. It automatically moves the Tun-A-Lite and both Band Indicators to whichever band is selected.

Silent Tuning Push-Button Control: A new and very helpful tuning aid adopted this year is the Silent Tuning Push-Buttor Control. Push this button and instantly the receiver becomes silent. Thus, phone calls may be received, conversation carried on or annoying announcements eliminated without disturbing any other adjustments of the receiver. Removing the pressure on the push-button will immediately restore your program at its previous volume and tone conditions. All noise may be avoided when tuning from one station to another by pushing this button.

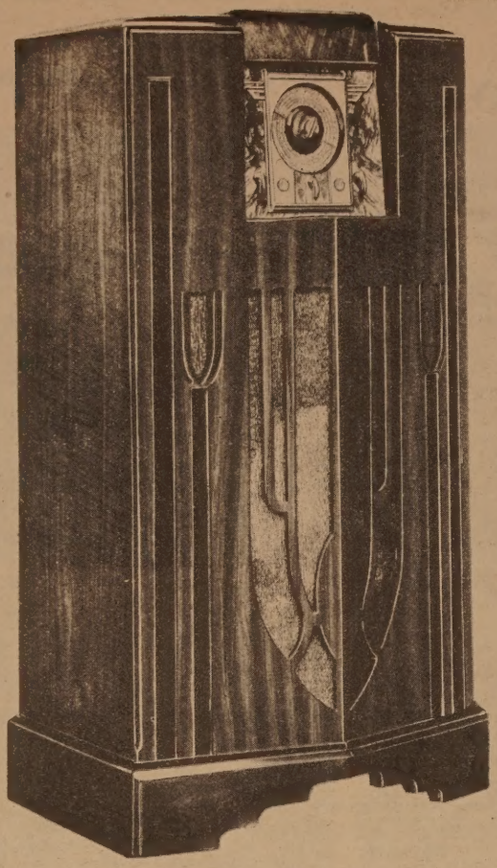


Wiring diagram of 18 tube latest model CC triple wave receiver. It tunes in short, broadcast and long waves up to 2400 meters! (No. 321.)

The *Beat Frequency Oscillator* is a great aid when you are tuning in short-wave programs. Most people unfamiliar with tuning on short-wave bands tune so rapidly that they miss many stations. If you push the button the beat frequency oscillator will whistle as you approach or leave a station and is quiet when you are tuned exactly on the station. This quiet spot is called the point of "zero beat." In laboratory tests, even men who were experts in tuning in short-wave stations were able to locate many more stations when they used the beat frequency oscillator.

A further improvement in tuning controls involves two concentric metal knobs; each of which is fastened with 2 set-screws instead of the usual one set-screw. The large knob is used for fast tuning, especially on short-wave bands and has a tuning ratio of 25-1.

The *Midwest* model CC 18 is the very latest design 18-tube receiver having the remarkable tuning range of 4½ to 2400 meters or 67 meg. to 125 KC.—6 tuning ranges! This set has a very handsome dial calibrated with the stations' call letters on it, and also the various short-wave and broadcast bands clearly indicated or marked on the dial so that any band or station can be very quickly found.



Midget All-Wave Receiver

Description—This table type superheterodyne receiver is capable of tuning from 18

to 555 meters without using plug-in coils and with only one tuning adjustment control, Four tuning units, comprising nine coils, three for the broadcast band and six for the short wavelengths, are mounted in a catacomb assembly which contains the band selector switch. The switch has 46 contacts that are fitted with 125 silver points. This all-wave receiver is also available in a console style cabinet.

Maker—Pilot Radio & Tube Corp., Lawrence, Mass.

Midget Receiver

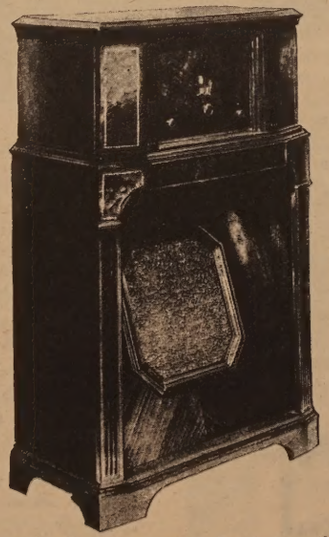
Description—The Lafayette mantel type set illustrated here is a seven-tube superheterodyne circuit and is provided with a tone modifier and an acoustic compensator. The tubes employed are two –24 type, one –27 type, two –35 type, one –47 pentode and one

–80 rectifier. The receiver chassis and dynamic speaker are enclosed in an American walnut cabinet measuring 18 inches high by 15 inches wide by 11⅛ inches deep.

Maker—Wholesale Radio Service Company, 100 Sixth Avenue, New York City.

Unique Superheterodyne Receiver

Description—The Philco model 112X is an eleven-tube superheterodyne receiver featuring a new method of cabinet design and mounting for the reproducer, so as to provide the utmost in quality reproduction. The improved electro-dynamic speaker is mounted on a baffle-board of large area, which is sloped in such a way as to throw the sound upward and not along the floor.



An echo-absorbing screen is installed at the back of the speaker chamber, to prevent any echo or blur effect. The baffle-board is made of extra heavy laminated hardwood and it is securely anchored to the cabinet to prevent vibration. The receiver is equipped with two pentode power tubes, automatic volume control and a four-point tone control.

Maker—Philadelphia Storage Battery Co., Philadelphia, Pa.

Four above sets from RADIO NEWS, June 1932

TURN BACK THE DIAL

be missing from the cast because of other Chicago radio contracts.

May 2 is the last date Judy Canova, Annie and Zeke will be heard on the Rippling Rhythm Revue. It is definite that another comedian will be employed by this show. At the moment, all are decided on Bob Hope with his stooge, Honey Chile. The contract, however, has not been signed because Hope is currently in the stage production of "Red, Hot and Blue." Hope must make the decision as to whether he'll go on the air or stay in the stage show, now in Chicago.

Henny Youngman, a newly discovered radio comedian, has been a great success. His first appearance on Kate Smith's Bandwagon Program roused studio laughter once every eight seconds!!! A recording of the program revealed that in five minutes and eight seconds on the air, he got laughter 38 times!!! You'll probably hear him again soon.

We are sorry that BOBBY BLAKE was permitted in the script of BETTY AND BOB to die of pneumonia, but we do not have any control over the whims of radio authors and producers. Your letters complaining of this situation are being referred to the firm sponsoring BETTY AND BOB.

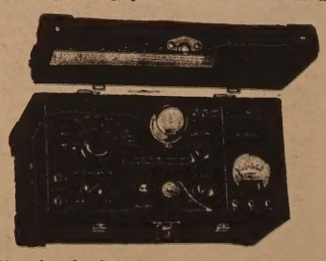
SCHEMATIC RESEARCH, FUN

"Each request for material is a challenge to us," stated James Lynch, manager of Supreme Publications, "And while most items can be easily and quickly filled, at times our Mr. Beitman (who has been connected with diagrams and servicing for 40 years) spends an hour to find a hard one. 'it's fun,' so he says."

It is good to know that there is a large organization ready to supply service material on a radio or a TV set you may find hard to repair and for which you do not have a diagram and other helpful service data.

Oscillator

Description—This model No. 530 oscillator should have popular appeal for the radio experimenter as well as the serviceman and dealer. It is a direct-reading instrument with an adjustable output covering both broadcast and intermediate-frequency wave bands from 130 to 1500 kilocycles. The parts are heavily shielded and the complete equipment is contained in an



attractive leatherette-covered carrying case.

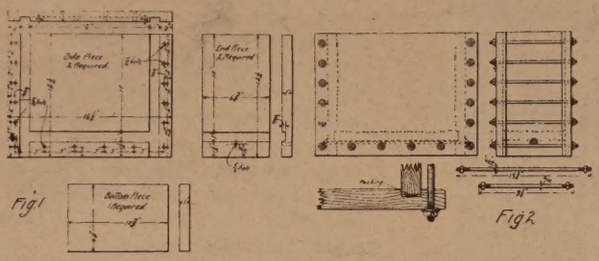
Maker—Readrite Meter Works, 20 College Avenue, Bluffton, Ohio.

A Small Nickel-Plating Outfit

By J. A. HOLLANDER.

ELECTROPLATING is a subject much discussed, but it has usually been so encumbered by the theories and chemical actions involved that the practical side has been lost sight of.

Without attempting to go into the theoretical part of the subject, the writer has endeavored to describe a small but practical outfit for nickeling the more common metals, namely: brass, copper and iron. The expense is small, the cost of the whole, tank, anode, and chemicals, being less than four dollars.



Tank.

To start with, we must have some kind of non-conducting vessel for holding the solution, a wooden tank is the best. One 6 inches wide by 12 inches long by 10 inches deep, is amply large for ordinary use.

Sound yellow pine one inch thick should be used. The side pieces are 12½ inches high, 16½ inches long. Cut vertical grooves 1 inch wide and ⅜ inches deep. 1¼ inches from the ends and the horizontal groove of similar width and depth 1½ inches from the bottom, joining the vertical grooves (Fig. 1.)

The end pieces are 12½ inches high by 6¾ inches wide. Cut a groove 1 inch wide and ⅜ inches deep, 1½ inches from the bottom.

The bottom piece is made 12¾ inches long by 6¾ inches wide.

Now bore five 5/16 inch holes in each end of the side pieces, starting 1 inch from the top, and ¾ inches from the ends, and 2 inches between centers. Another row of six 5/16 inch holes are bored, ¾ inches from the ends, 1 inch from the bottom and 3 inches between centers.

Next bore one 5/16 inch hole in each of the end pieces 1 5/16 inches from the bottom. All these holes are for the tie-rods.

Obtain 14 ft. of 5/16 round iron or steel rod, and saw off 16 lengths 9¼ inches long and one length 15¼ inches long. Thread the ends with a 5/16 die for 1 inch and procure washers and nuts to match, (Fig. 2).

Soak some heavy cotton yarn or packing in asphaltum and lay several strands in the middle of each groove.

Now the tank is ready to assemble. Set the pieces together (Fig. 2) and insert the 9¼ inch rods through the holes in the side pieces, and the long rod through end pieces, and draw up on the nuts.

Then give the inside four or five coats of asphaltum, one coat is sufficient for the outside. This will prevent the wood warping, thereby insuring against leakage.

Anode.

The nickel anode can be had at any platers supply house, and is 8 inches by 4 inches wide and about ½ inch thick. The price ranges from 50 to 60 cents per lb. One of the size named weighs about 2½ lbs. and will last for years. The writer has had one in use for over a year and it shows a reduction in weight of but one-quarter of a pound.

From MODERN ELECTRICS, January 1911 (Concluded next month)

THE LOOKS OF RADIO'S FUTURE IN 1932

Short-Waves Developing Rapidly

By James Millen
Vice-President, National Company, Inc.

JAMES MILLEN

WITH the ever-increasing use of the frequencies between 3 and 20 megocycles for international broadcasting, aviation, various types of communication and other such commercial applications, the true experimenter is being crowded out of the short-wave field in which he only so recently pioneered.

Under 10 meters, however, lies a vast band of little-used frequencies about which little actual scientific data is as yet generally available. This ultra-short-wave field will undoubtedly receive the same attention during the coming year from the leaders of RADIO NEWS as did the so called short-wave field just a few years ago.

In our laboratory at Malden we have been conducting researches in this new field for many months and as a result have developed a complete line of the highly specialized components required by the ultra-high-frequency experimenter. These new products will be exhibited for the first time at the annual radio trade show to be held in Chicago this spring.

Short-Waves, Multiple Speakers—Stressed

By McMurdo Silver
President, Silver-Marshall, Inc.

McMURDO SILVER

THE 1932-33 radio season will see a number of new design trends, not necessarily along revolutionary lines. Summarizing, these new developments will be the wider offering of combination short-wave and broadcast receivers, the use of multiple speakers, new tubes and class B audio amplification.

In the combination field, the public has realized the DX possibilities of short waves, and an ever-increasing interest will result in much wider offering of such sets by manufacturers.

Multiple speakers will be used both for pure sales appeal and the somewhat improved tone they give over a single speaker.

Accurate Analysis in Service Work

By John F. Rider
Engineering Consultant

J. F. RIDER

THE trend of radio servicing presents a very interesting picture, one which indicates that the present radio serviceman will lose his identity as a repair man and become a technician and salesman.

Future radio service will follow in step with modern changes in engineering and the prophecy is made that within a very short time, new methods of radio receiver analysis and service will be introduced. What with the modern idea of speed and the demand for accuracy, radio service work will progress toward more rapid and accurate methods of analysis with less possibility of error and guesswork.

Speakers for Greater Power

By Peter L. Jensen
President, Jensen Radio Mfg. Co.

P. L. JENSEN

THE design of 1932-33 loudspeakers will depend upon the trend in radio receivers and output tube standards. The trend in receiver design is toward more undistorted electrical output, whether accomplished by the use of class B amplifier and –46 tubes or by the use of more powerful triodes. This necessitates the employment of speakers capable of handling a greater amount of power. The trend in speakers will therefore be toward the use of a more rugged single speaker, or, what is more probable, the use of multiple speakers. Two speakers, with their natural period slightly staggered will increase the undistorted acoustical output from four to six times. The use of three or more speakers will further improve conditions in the same proportion.

Future of Television in the Cathode-Rays and Ultra-Short Waves

By Hollis S. Baird
Chief Engineer, Short Wave & Television Corp.

H. S. BAIRD

THE screen receivers which have come into use during the past few months should be considered only a stepping-stone to home television using cathode-ray tubes. The ultra-short-wave bands and the cathode-ray tube form the only foundation for a successful television system which can compare with our present broadcasting system. In the former we have sufficient channels for the number of stations and in the latter we can go to any reasonable number of scanning elements for detail to compare with home movies.

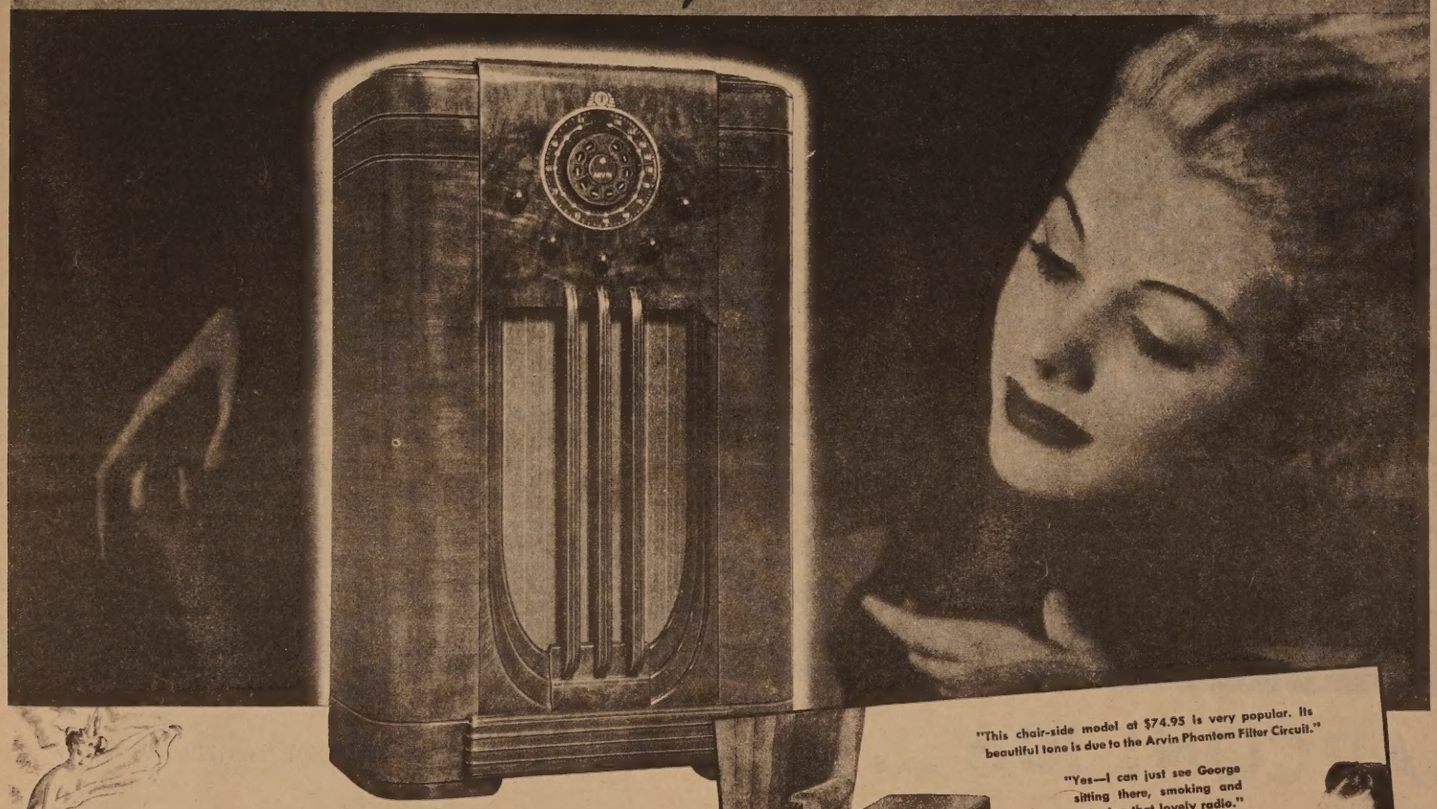
The accompanying sound will also be sent on the ultra-short-wave band so that the home televisor will be entirely separate from the present broadcast receiver, and both sound and picture will be operated by one dial.

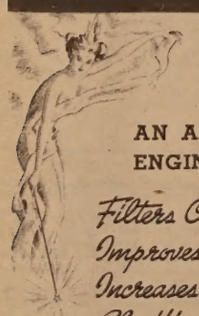
THE NEW BIG NAME IN RADIO

ARVIN

ANNOUNCES 1938 MODELS WITH

The Phantom Filter Circuit





AN ARVIN ACHIEVEMENT BASED ON THIS ENGINEERING TRUTH—The Circuit Makes the Radio

Filters Out Noise
Improves Tone Quality
Increases Station Range
Clarifies Reception

First came the superheterodyne circuit...the big news in radio years ago! *Today—it's the Arvin Phantom Filter Circuit.* Why? Because it vastly improves radio reception—does away with distorted tone—adds remarkably to the enjoyment your family will get from a new 1938 Arvin.

Radio engineers know *this:* It's the *circuit* that makes one radio *sound better* than another—the way the coils, condensers, transformers and tubes are knit together. Only radio men can *see the difference*—but your ears will *tell you the difference*, when you listen to the new Arvins alongside other radios. The charm and grace of Arvin cabinet styling will please you, too!

Thirty-one attractive models from $19.95 to $175. Every modern feature, including automatic tuning with Arvin's new Presto-Station-Changer. Large-face dials, acoustically correct design, all-wave reception. And above all, Arvin's *exclusive* Phantom Filter Circuit. Beautiful 12-tube console, above, $119.50.

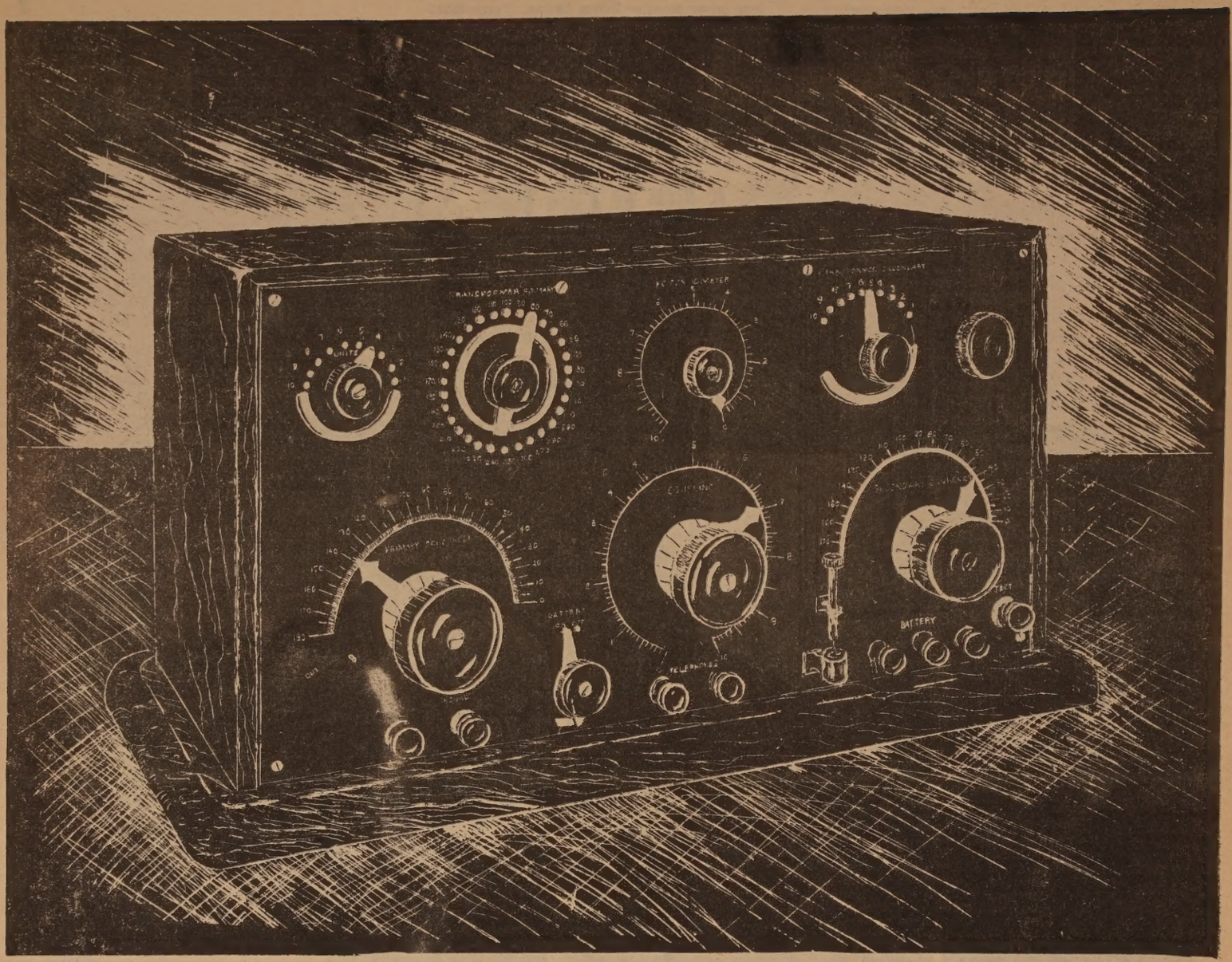
See the new Arvins for your home—and Arvin Phantom Filter Car Radio. Models as low as $29.95.

Prices slightly higher West of Denver and in extreme South.

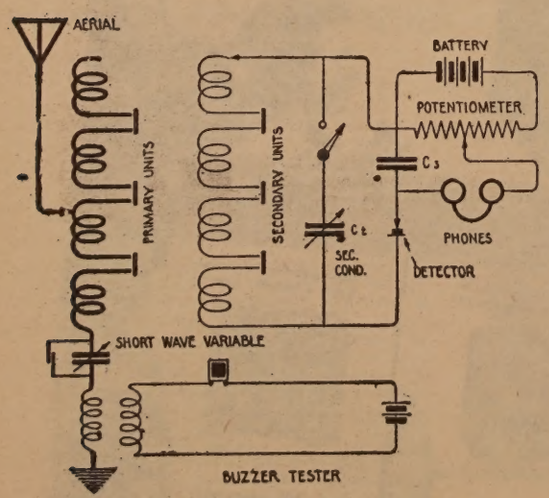
"This chair-side model at $74.95 is very popular. Its beautiful tone is due to the Arvin Phantom Filter Circuit."
"Yes—I can just see George sitting there, smoking and enjoying that lovely radio."
Drop in where Arvins are Shown and Hear these New Radios
"There's just the radio for my girl's room. How much is it?"
"That's a darling little set and it has a beautiful tone."
"It is only $29.95—and just listen to it bring in stations, all over the dial."
"Oh yes—this 5-tube model is just the thing for bedrooms. In the ivory cabinet it's $24.95—in walnut $19.95."

NOBLITT-SPARKS INDUSTRIES, INC., COLUMBUS, INDIANA

Also makers of Arvin Phantom Filter Car Radios and Arvin Car Heaters



MARCONI 106 ... 1915, MODIFIED TO 106D BY GENERAL ELECTRIC FOR RCA, 1922



Fundamental Circuit Diagram 106 Tuner.

1922 ad

CONTINENTAL

Trade Mark
THE SYMBOL OF SERVICE

"New York's Leading Radio House"

PARAGON RD-5 *and* WESTERN ELECTRIC LOUD SPEAKER

This Receiver is capable of amplifying speech or music with the highest degree of clarity and tone quality. The new paragon RD-5, designed to operate on wave lengths from 160 to 510 meters, has included in it a detector unit. Careful distribution and proportioning of units afford selective and sensitive tuning.

Western Electric Loud Speaker consists of a curved horn especially designed for radio operation and 2 stages of amplification. Three type 216-A vacuum tubes are used, one for the first stage of amplification and two connected on the differential principal for the second stage.

"Modern Radio" — a 208 page catalogue of up-to-date radio equipment, supplies and apparatus sent for 25 cents.

Price, complete with aerial, tubes, B batteries, ground connections

$301.00

2018-g

Continental Radio and Electric Corp., 6 and 15 Warren St., New York, U. S. A.

Backstage in Broadcasting

Chatty bits of news on what is happening before the microphone. Personal interviews with broadcast artists and executives. Trends and developments of studio technique

By Samuel Kaufman

TERMED "an experiment to awaken a desire for self-expression in music," the National Broadcasting Company has launched a unique series of semi-weekly programs to promote the study of piano playing. Sigmund Spaeth and Osbourne McConathy, prominent authors and lecturers on music, are conducting the programs. Mr. Spaeth directs the Saturday "Keys to Happiness" periods, while Mr. McConathy supervises the Tuesday "Music in the Air" programs.

The programs are neither "sponsored" nor "sustaining." A network representative tells us they come under the classification of "institutional." The broadcasts are offered free of all charges to associated stations, the NBC paying the wire-line tolls. In the case of "sustaining" programs, the member stations pay these costs.

Sigmund Spaeth

The Radio Music Company, a network subsidiary, is prominently identified with the series and had published, for free distribution to listeners, charts bearing keyboard diagrams and specimen music bars to supplement the received programs. Requests for 55,000 charts reached the chain's offices within a few weeks. The charts are designed to fit into the slot behind the piano keyboard to facilitate the instructions of the invisible radio tutor.

Special emphasis has been placed by network officials on the fact that the series is not a "course," but merely a group of programs to prove the ease of learning to play. All applicants for charts are strongly urged to continue their piano studies under the guidance of a personal instructor. As a gesture of good will to music teachers, the network recently invited 600 piano instructors of the New York area to the Times Square studio for one of the Tuesday broadcasts. In addition to witnessing the microphone presentation, the assemblage was addressed by Merlin H. Aylesworth, president of the NBC.

A BROADCASTING executive recently remarked to us that all of the smash-hits in radio were men. There have always been many female broadcasters who maintained high standards of popularity, but we must agree that no artist of the fairer sex ever approached the marks set by Amos 'n' Andy, Floyd Gibbons and Rudy Vallee. Now, a National Broadcasting Company spokesman whispers in our ear that his network has realized this situation and is endeavoring to introduce new female artists on featured program spots.

Among the female headliners recently added to the NBC schedule are the Boswell Sisters — three of 'em — namely,

The Boswell Sisters

Martha, Connie and Vet. A network scout spotted the trio of Louisiana belles on a movie lot in Hollywood. After a brief tryout on a San Francisco station, the sizzlin', jazzin', harmonizin' sisters were dispatched to New York and network stardom. They arrived in New York in February and in two months their fan mail equaled that of stars of much longer standing. When we interviewed the girls in their own studio, we were surprised to find that they play every instrument used in a dance orchestra. Connie expects to conduct her own orchestra on the air in the near future. They compose music and frequently arrange their own orchestrations for radio programs and phonograph recordings. Their greatest pleasure in facing the microphone is the knowledge that Pa Boswell, down in New Orleans, is listening to them.

DALE WIMBROW, the Columbia Broadcasting System's veteran songster and ukulele player, has designed a six-string ukulele recently put on the market. We ran into Dale in the WABC studios and he serenaded us with his new instrument. Dale tells us that he's not any longer publishing all the songs he composes for his programs. "While comedy and novelty songs may click far and wide on the radio," Dale remarks, "there is a limited demand for published copies." Dale carries a ledger-size scrap-book containing a complete record of his radio career. Ask him a question, and he thumbs the pages until he reaches the spot revealing the answer.

BEING in the vicinity of the Columbia studios one recent Wednesday evening, we decided to pay a visit to Miss Evangeline Adams during her astrological broadcast. We expected to find Miss Adams in the small studio usually designated for speakers and were somewhat surprised to be conducted into the largest of the chain's seven studios. Here were assembled the members of a sizable orchestra for the purpose of playing a musical prelude and finale to the program. Miss Adams, herself, sat at a desk and spoke into a cylindrical microphone lowered from the ceiling by a pulley arrangement. Miss Adams' thrice weekly program makes her the recipient of thousands of fan letters following each broadcast. The noted astrologer attributes her long study of the Zodiac to her scholastic love for mathematics, history and philosophy. She saw astrology as a field that included all of the subjects she favored, she said.

STARTING at the top and proceeding downward would not readily indicate progress. Yet in the instance of the Columbia Broadcasting System it reflects rapid growth and expansion. When the chain's headquarters were moved into the CBS structure on Madison Avenue, they occupied some of the tower floors. When additional space was needed, expansion to the lower floors was necessary. The network's rapid growth and enlarged personnel demanded so much additional space that some departments have already been transferred to larger quarters as many as three and four times. Expansion is so speedy and transfers so frequent that it is quite essential to consult the directory board in the main corridor to ascertain whether or not the department you are seeking is still on the same floor as upon your previous visit.

THE return to the air of Norman Sweetser on the occasion of Rudy Vallee's recent personal appearance tour brought about numerous queries as to where the veteran N. B. C. announcer had been for the past year. Although he was not on the air, Sweetser occupied an important executive network assignment to which he returned at the conclusion of the Vallee tour. Sweetser has been manager of the Times Square studio of the N. B. C. since its inception in the Spring of 1930. It is from this site that the Collier's, Camel, Clicquot Club and General Electric Hours are regularly heard. The site was previously known as the Frolic Theatre and is located in the heart of New York's amusement center. The auditorium accommodates 600 visitors and there has rarely been an empty seat during the presentation of any program behind the huge glass curtain separating the onlookers from the stage-studio.

AT THE '31 CHICAGO TRADE SHOW

Standard Television Receiver

Description—A new television console for the regular home reproduction of television pictures. It includes a short-wave television receiver, which can also be used to pick up short-wave broadcast programs for reproduction through the loud speaker which is a part of the console. The televisor portion of this set employs

a neon tube with a plate 2 by 2⅛ inches, and a wide angle, especially corrected lens system which provides pictures 8 by 10 inches in size. The set is marketed complete for operation from a.c. lines.

Maker—Short Wave & Television Corporation, 70 Brookline Ave., Boston, Mass.

RADIO NEWS FOR JULY, 1931

NOTICE

PAPER PRICE INCREASE SUBSCRIPTION RATES FOR THE HORN SPEAKER, AFTER JANUARY 1, 1977:

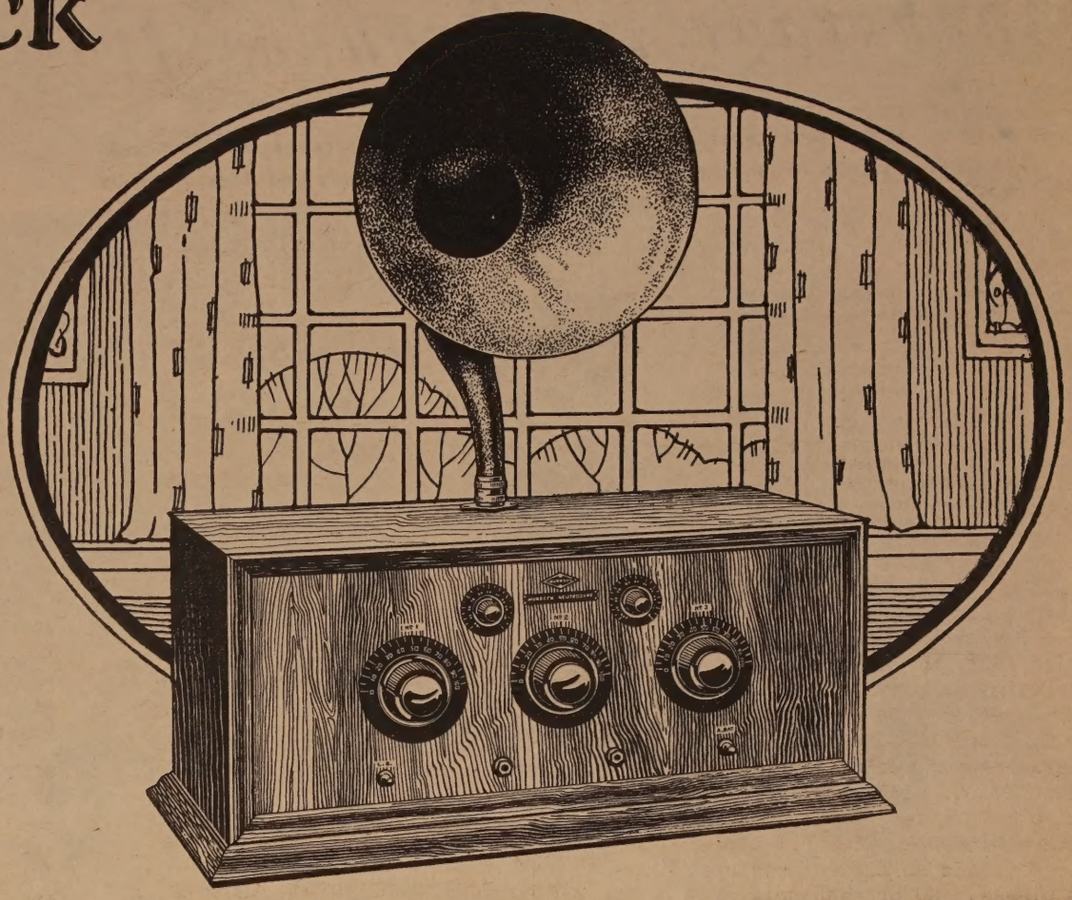
New rates after January 1, 1977:
One year.....$5.50
Two years.....9.00
Special rates for one year (mailed in envelope)
First class.....8.50

Foreign Air Mail.....16.00

MURDOCK

The Murdock Company aptly called itself the "Standard since 1904"... a very early start. If you start an early wireless collection you will frequently see the name Murdock on earphones, loose couplers, varilable condensors, detectors, etc. Most collectors "covet" the Murdock one kilowatt spark transmitter, a beautiful item, deserving the choice spot of any collection.

Anyway a 1925 battery set carrying the name Murdock commands attention.



the Murdock Neutrodyne

$100.00 in 1925

Old Radio Treasures

There's a rare old radio waiting for you somewhere. Here's how to have year-round fun discovering valuable old sets in your attic, local swap meet or antique barn. You'll enjoy McMahon's fascinating books, truly fine collector's references.

VINTAGE RADIO, 1887-1929: Pictorial story of pioneer days, 1,000 photos, 263 pages. $10.95 hard-cover, $8.95 soft.

A FLICK OF THE SWITCH, 1930-50: Fun picture reference of home, military, Ham, professional radio-TV-electronics, 312 pages. $10.95 hard-cover, $8.95 soft.

RADIO ENCYCLOPEDIA, Gernsback's 1927 classic beautifully recreated, 175 pages. $14.95 hard-cover, $10.95 soft.

RADIO COLLECTOR'S GUIDE, 1921-32: Data book with 50,000 facts on 9,000 models by 1,100 makers, 264 pages, $6.95.

1926-38 RADIO DIAGRAMS: Beitman's classic of 600 models, 240 pages, $7.00.

Here are the ideal holiday gifts.
ORDER NOW
FOR IMMEDIATE DELIVERY!

CIRCUIT DIAGRAM for any pre-1951 radio: $3.50. Send model number.

SEND TODAY to Vintage Radio, Dep't D, Box 2045, Palos Verdes, Ca. 90274. We pay postage. Calif. residents add 6%.

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Year-round Fun!

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DID YOU KNOW THAT FOR ONLY $50.00 YOU CAN BUY ONE FULL PAGE AD 10-1/8" X 13-3/8" THE EQUIVALENT OF SENDING IN POSTAGE ONLY 385 PIECES @ 13¢ EACH (NOT EVEN COUNTING THE COST OF PRINTING, ETC.)

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EXTRA CHARGES IF AD DOES NOT FIT PURCHASED SPACE.

THE HORN SPEAKER
9820 Silver Meadow Dr.
Dallas TX 75217
(214) 286 1673

MART

Classified ad rate: 6¢ per word.
Photo ads: $2.00 extra.

Deadline: 15th of the preceding month.

MISC.

PROFESSIONAL CW operators, retired or active, commercial, military, Gov't, police, etc., invited to join Society of Wireless Pioneers, W7GAQ/6, Box 530, Santa Rosa CA 95402.

"RADIO AGE," a radio magazine devoted to wireless and early broadcast eras. Contains interesting articles written by collectors, articles published in early radio magazines, lots of reprints of famous radio ads, and a classified section for buying or selling radio and electronic items. Subscribe at $7.50 per year for ten issues. Mail check or money order to Radio Age, 1220 Meigs Street, Augusta, Georgia 30904.

FOR SALE: The Collins Wireless Bulletin 1909 $50. Full year of 1909 in hard cover-old brass xtal detector holder $25. Grebe 2 stage AF amplifier type Rork serial No. 1265 $125. CD Tuska one tube regen. $135. AK 90 Cathedral $100. AK cabinet for model 20 compact $25. AK 2 stage type TA AF pod $50. Wet cell round glass containers 5/$25. Philco 71 Cathedral $75. Old TV picture magnifier $35. Jefferson tube rejuvenator OK $25. Unusual old speakers. Dictagrande looks like cash register, wood with horizontally folded paper cone $75. Belophonic round wood with side pillars set on mantel $100. Utah brown plastic two piece resembles mushroom $50. Victor type E Talking Machine $250, beautiful oak with nice outside brass horn. Stephen C. Sideroff, Route 1, Box 47, Marlboro N.J. 07746.

FOR SALE: Philco wireless dialtype station tuner with type 30 tube nice - Drakes Radio Cyclopedia 2nd edition 1928, OK condition $50. 1917 Valley Battery charger, OK condition charges 1 to 4 6V batteries $75.00. June 1928 Radio News Dealers personal edition, OK condition $20.00. Eight 1929 Radio News $40.00, nice 1927 Radio News Amateurs handbook, nice but loose cover $15. Add sufficient postage. SASE please. MO or cash only. Steve Sideroff, Route 1, Dutch Lane Rd., Marlboro NJ 07746. Phone 201-462-7987.

LET'S MAKE A DEAL! Supertone "Super-Audible-Heterodyne", by Buckwalter Radio Corporation, Chicago, circa 1925. Similiar model featured in OTB, 17-3, page 19. One audio open, cabinet needs work. All 8 tubes are good. Unusual "printed circuit" wiring. Wish to work up a deal for AK board, Magnavox TRF-series, Scott, or ????. Cash difference, up or down. Polaroid available. Greg Dockter, 2519 Ave. C, Bismarck, N. Dak. 58501 (701) 223-0421.

BLANK BAKELITE STOCK cut to size, 1/8" to 1/2" thick. Fabricating and engraving services available. SASE for pricing sheet. Norman A. Parsons, 22 Forest St., Branford CT 06405, Phone: 203 488-4267.

FOR SALE: Sams Photofacts 1946-1954 set 1-80 in original envelopes, 81-230 bound, approx. 300 pounds, excellent condition $200. plus shipping. Roger Schmitt, 114 Charles St., Michigan City, Ind. 46360.

TUBES, Radio magazines, Rider Manuals, Battery Radios back to 1920. Send SASE for your wants. Louis C. King, Route 4, Box 575, Seaford, Del, 19973.

FOR SALE OR TRADE

ANTIQUE TELEVISION collection: 38 different models from 1930s, 1940s one or all $75.00 up each. List & picture $1.00. Seidel, 925 Starlite Pl., Grants Pass, Oregon 97526. Phone: 503 476-1585. Want horn phonographs any quanity, CASH.

SCOTT IMPERIAL 23 TUBER COMPLETE WITH CABINET, OPERATOR AND MAINTENANCE MANUALS. IN EXCELLENT CONDITION AND WORKS FINE. CHROME SHINES LIKE NEW. ACCEPTING OFFERS OF CASH OR TRADE FOR EARLY BATTERY SETS. W6ME, 4178 CHASIN STREET, OCEANSIDE CA 92054.

FROM TIN FOIL TO STEREO, great classic of phonograph history now available at $9.95 softbound, $19.95 hardbound. Sams' TUBE SUBSTITUTION HANDBOOK, a must for restorers only $2.25. Also see our display ad. Vintage Radio, Palos Verdes CA 90274.

FOR SALE: We have many hours of quality old time radio programs from late '20s to mid '30s. Fun to play the actual old programs thru the horn speaker -- just like back when. Custom made tapes any method. Blalock's Sound Library, 609 Blue St., Richland, Wash. 99352.

FOR SALE: Radios, tubes, speakers, parts, books, magazines and test equipment. Ask for list R-1-77, 50¢ & large SASE. Krantz, 100 Osage Ave., Somerdale N.J. 08083.

FOR SALE: A-K 37, AC model, restored and complete with tubes, $45.00. Matching Type E speaker, $25.00. Robert Plamondon, Rt. 2, Box 1122, Crescent City CA 95531.

FOR SALE: Solid-State power supply provides most needed "A", "B" and "C" voltages. Send SASE for special sheet. G. B. Schneider, 6848 Commonwealth, Parma Hgts, Ohio 44130.

WD11 Adaptors, use UX199, 120 VT24. No wiring changes, Radiola III's battery hook-up included $5.25 pp., 2 for $9.25. Keith Parry, 17557 Horace St., Granada Hills CA 91344.

FOR SALE OR TRADE

SEND $1.00 for the newly published booklet "A Pocket Guide to Antique Radio Collecting." Antique Radio Press, Box 42, Rossville IN 46065.

FOR SALE: WD & 99 TUBES X99/20-$5. V99/20-$7. WD11-R-$10. Send SASE for details. Hanson, 3403 E. Broadway, Long Beach CA 90803.

WANTED

NEED audio transformer for a Crosley model 52 or reasonable substitute. Contact; Ed Doughty, 3865 N. Thomas, Freeland, Mich. 48623.

WANTED: Crosley 50 - Crosley 51-A two stage amplifier - Radiola Receiver crystal set. Aeriola 2 tube amplifier. Radiola 1 type ER-753A. Will buy or trade for these sets. Andy Anderson, 151 Nooks Hill Rd., Cromwell, Conn. 06416.

WANTED: Pre-1930 radio, electrical, telephone, telegraph sets, parts, books, magazines, catalogs, service manuals, schematics etc. Bill Nangle, 761 No. 29th St., Milwaukee, Wis., 53208.

WANTED: Any radio fan magazines. Also, any radio magazine with commercial broadcast or star information. Examples - "Radio Guide," "Radio Stars," "Radio-TV Mirror," etc. Also Photoplay magazines. One or a hundred. Fred L. Davis, 5106 Skippy Street, Memphis, Tenn. 38116.

WANTED: AK 55 AC central tuning control with knob. Grid caps, collar and top caps. Any best suggestions for restoring tube shields metal to original look? Darcy Brownrigg, Chelsea, Quebec JOX INO, CANADA.

WANTED: Radio phonos with magnetic pickup, Electrola 8-60. T. Grattelo, 2818 Central Ave., Alameda CA 94501.

WANTED: A.K. 33 three audio transformers, two interstage, one output. Cast-iron peg holder, forms for coil winder. Darcy Brownrigg, Chelsea, Quebec JOX INO, CANADA.

WANTED: Outside horn phonograph or parts, cylinder records in good condition. I will buy individual machines and records, or entire collections. Rick Wilkins, 905 Linda Vista, #19, Arlington TX 76013. Phone: 817 461 9978.

WANTED: Scott, McMurdo Silver, Lincoln, and other classic receivers. Also pre-1930 battery sets, speakers, mikes, etc. J. E. Cunningham, 23W 675 Ardmore, Roselle, Ill. 60172.

WANTED: Armour or Brush wire recorders or manuals. Also, military manuals of VLF equipment. Layer, AV-SFSU, 1600 Holloway, San Francisco CA 94132.

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PUBLISHERS OF
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(send 13¢ stamp for newsletter sample)

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01A, 99, WD-11, etc. when in stock, ANTIQUE RADIO SETS AND TEST GEAR, ANTIQUE RADIO BOOKS, AND OTHER "one at a time" items-- list sent by first class mail four to six times a year by subscription -- $2.00 per year.

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								7B8	$4	12Q7	$4	25L6	$3	50Y7	$4	117Z4	$4
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						6S8	$4	7C6	$4	12SA7	$3	25Z5	$3	55	$5	485	$5
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						6SB7	$3	7E6	$4	12SF5	$3	26	$6	57	$4	950	$5
						6SC7	$3	7E7	$4	12SF7	$3	26A6	$4	58	$4	951	$5
						6SD7	$3	7F8	$5	12SG7	$3	26A7	$4	59	$6	955	$4
						6SF5	$3	7G7	$4	12SH7	$3	27	$4	70A7	$3	958	$4
						6SF7	$3	7H7	$4	12SJ7	$3	28D7	$3	70L7	$5	1201	$4
						6SG7	$4	7J7	$4	12SK7	$3	30	$5	71A	$7	1203	$4
						6SH7	$3	7L7	$4	12SL7	$3	31	$4	75	$4	1232	$4
						6SJ7	$3	7Q7	$4	12SN7	$3	32	$4	76	$3	1273	$4
						6SK7	$3	7R7	$4	12SQ7	$3	33	$4	77	$4	1852	$3
						6SL7	$3	7S7	$4	12SR7	$3	34	$4	78	$4	1853	$3
						6SN7	$2	7V7	$4	12V6	$3	35	$4	79	$4	9002	$3
						6SQ7	$3	7W7	$4	12X4	$2	35A5	$4	80	$3	9003	$3
						6SR7	$3	7X6	$4	12Z3	$2	35B5	$2	81	$6	9004	$4
						6SS7	$3	7X7	$4	14A4	$4	35C5	$2	82	$3	VR-90	$2
						6ST7	$3	7Y4	$4	14A5	$4	35L6	$3	83	$3	VR-105	$2
						6SU7	$3	7Z4	$3	14A7	$4	35W4	$2	83V	$3	VR-150	$2
						6SV7	$3	10	$7	14B5	$3	35Y4	$4	84	$3	VT-52	$5
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						6U7	$3	12A7	$4	14C5	$3	35Z5	$3	117L7	$5	XXL	$4
						6V6	$2	12A8	$4	14C7	$4	35Z6	$4	117M7	$5	XXFM	$4
						6X4	$2	12AH7	$3	14E6	$4	36	$4				
						6X5	$2	12AT6	$2	14E7	$4	37	$4				
						6Y5	$3	12AT7	$2	14F7	$4	38	$3				
						6Z4	$3	12AU6	$2	14F8	$4	39	$3				
						6Z5	$3	12AU7	$2	14H7	$4	40	$7				
						6Z7	$2	12AV6	$2	14J7	$4	41	$4				
						6ZY5	$3	12AX7	$2	14N7	$4	42	$4				
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						7A5	$3	12B8	$4	14R7	$4	44	$3				
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						7A8	$4	12C5	$3	15	$7	48	$4				
						7AE7	$4	12C8	$4	19	$4	49	$4				
						7AG7	$4	12F5	$3	22	$7	50	$7				
						7B4	$4	12H6	$3	24A	$5	50A5	$3				
								12J5	$3	25A6	$3	50B5	$2				
								12J7	$4	25A7	$3	50C5	$2				
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				1U5	$3												
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						6N5	$5										
						6N6	$4										
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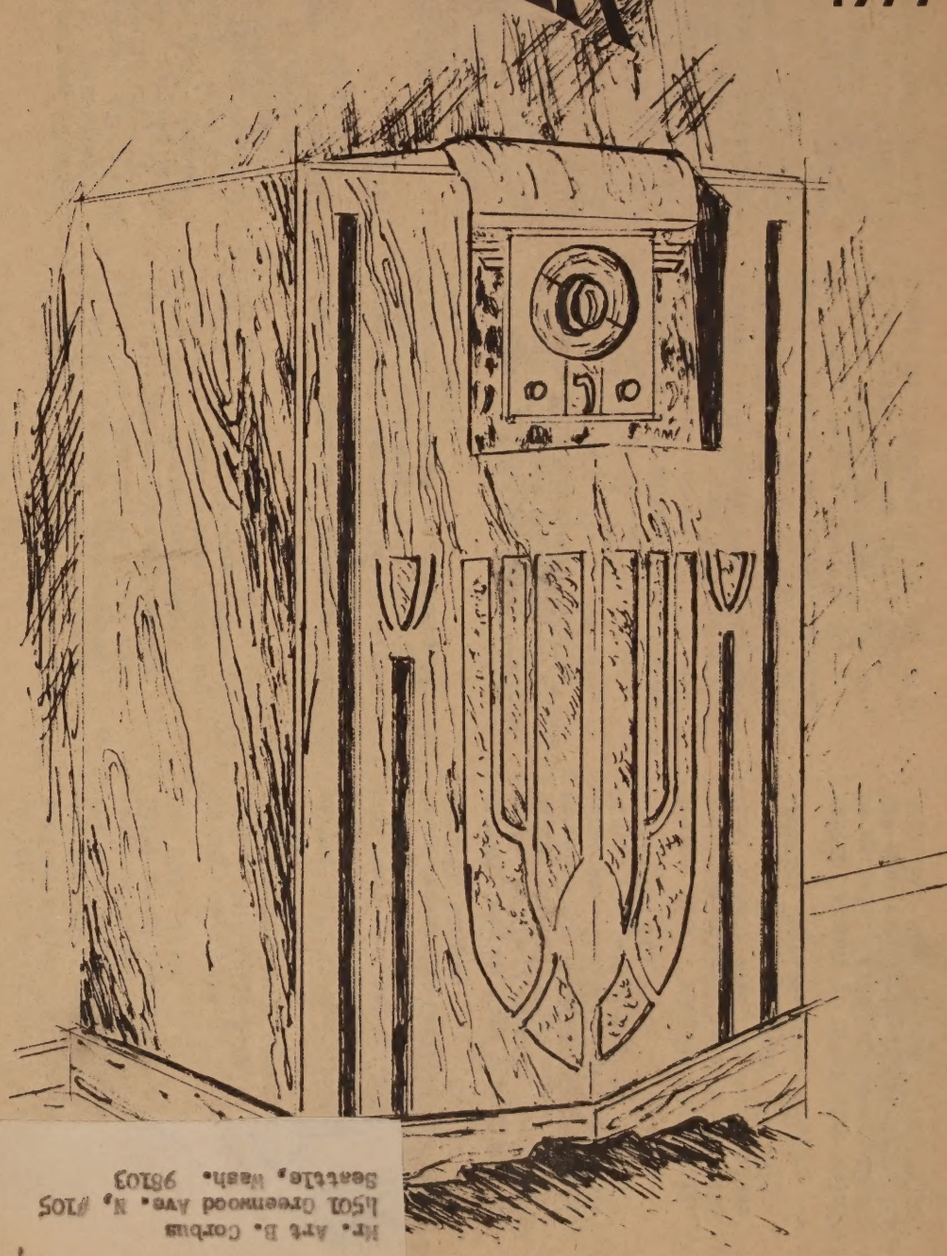

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7

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